

SIMATIC S7-1200, ANALOG I/O SM 1234, 4 AI / 2 AO, +/-10V, 14 BIT RESOLUTION OR 0(4) - 20 MA, 13 BIT RESOLUTION



Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
Input current	
Current consumption, typ.	60 mA
from backplane bus 5 V DC, typ.	80 mA
Power loss	
Power loss, typ.	2 W
Analog inputs	
Number of analog inputs	4; Current or voltage differential inputs
permissible input voltage for current input (destruction limit), max.	$\pm 35$ V
permissible input voltage for voltage input (destruction limit), max.	35 V
permissible input current for voltage input (destruction limit), max.	40 mA
permissible input current for current input (destruction limit), max.	40 mA

Cycle time (all channels) max.	625 $\mu$ s
<b>Input ranges</b>	
• Voltage	Yes; $\pm 10$ V, $\pm 5$ V, $\pm 2.5$ V
• Current	Yes; 4 to 20 mA, 0 to 20 mA
<b>Input ranges (rated values), voltages</b>	
• -10 V to +10 V	Yes
• Input resistance (-10 V to +10 V)	$\geq 9$ MOhm
• -2.5 V to +2.5 V	Yes
• Input resistance (-2.5 V to +2.5 V)	$\geq 9$ MOhm
• -5 V to +5 V	Yes
• Input resistance (-5 V to +5 V)	$\geq 9$ MOhm
<b>Input ranges (rated values), currents</b>	
• 0 to 20 mA	Yes
• Input resistance (0 to 20 mA)	280 $\Omega$
• 4 mA to 20 mA	Yes
<b>Analog outputs</b>	
Number of analog outputs	2; Current or voltage
<b>Output ranges, voltage</b>	
• -10 V to +10 V	Yes
<b>Output ranges, current</b>	
• 0 to 20 mA	Yes
• 4 mA to 20 mA	Yes
<b>Load impedance (in rated range of output)</b>	
• with voltage outputs, min.	1 000 $\Omega$
• with current outputs, max.	600 $\Omega$
<b>Analog value generation</b>	
Measurement principle	Differential
<b>Integration and conversion time/resolution per channel</b>	
• Resolution (incl. overrange)	Voltage: 14 bits; Current : 13 bits
• Integration time, parameterizable	Yes
• Interference voltage suppression for interference frequency f1 in Hz	40 dB, DC to 60 V for interference frequency 50 / 60 Hz
<b>Smoothing of measured values</b>	
• parameterizable	Yes
• Step: None	Yes
• Step: low	Yes
• Step: Medium	Yes
• Step: High	Yes
<b>Errors/accuracies</b>	
Temperature error (relative to input range), (+/-)	25 $^{\circ}$ C $\pm 0.1\%$ , to 55 $^{\circ}$ C $\pm 0.2\%$ total measurement range
Temperature error (relative to output range), (+/-)	25 $^{\circ}$ C $\pm 0.3\%$ , to 55 $^{\circ}$ C $\pm 0.6\%$ total measurement range

Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input area, (+/-)	0.1 %
• Current, relative to input area, (+/-)	0.1 %
• Voltage, relative to output area, (+/-)	0.3 %
• Current, relative to output area, (+/-)	0.3 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$ , $f_1 =$ interference frequency	
• Common mode voltage, max.	12 V
Interrupts/diagnostics/status information	
Alarms	Yes
Diagnostic functions	Yes
Alarms	
• Diagnostic alarm	Yes
Diagnostic messages	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
• Short-circuit	Yes
Diagnostics indication LED	
• for status of the inputs	Yes
• for status of the outputs	Yes
• for maintenance	Yes
Potential separation	
Potential separation analog outputs	
• between the channels and the power supply of the electronics	No
Degree and class of protection	
Degree of protection acc. to EN 60529	
• IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
Marine approval	
• Marine approval	Yes
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in dispatch package
Ambient temperature during operation	
• permissible temperature range	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing
• min.	-20 °C

• max.	60 °C
<b>Ambient temperature during storage/transportation</b>	
• min.	-40 °C
• max.	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
• Operation, min.	795 hPa
• Operation, max.	1 080 hPa
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
<b>Relative humidity</b>	
• permissible range (without condensation) at 25 °C	95 %
<b>Extended ambient conditions</b>	
<b>Pollutant concentrations</b>	
— SO2 at RH < 60% without condensation	SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
<b>Connection method</b>	
required front connector	Yes
<b>Mechanics/material</b>	
<b>Enclosure material (front)</b>	
• Plastic	Yes
<b>Dimensions</b>	
Width	45 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	220 g
<b>last modified:</b>	08.01.2016